PATENT SPECIFICATION

DRAWINGS ATTACHED

1,141,836

1,141,836

Date of Application and filing Complete Specification: 2 May, 1966.

No. 19306/66

Application made in France (No. 58730) on 22 April, 1966.

Complete Specification Published: 5 February, 1969.

Index at Acceptance:—A3 B (1A5, 1B3, 1B4A, 1B5, 1C2B, 1C3, 1H, 1L, 1P, 8G, 10B2); B5 A1R27.

Int. Cl.:—A 43 b 9/00.

COMPLETE SPECIFICATION

Method of Manufacturing Shoes having Premoulded Uppers

I, ANTOINE JOSEPH GEORGES BAUDOU, of French Nationality, of Les Eglisottes (Gironde), France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the manufacture of shoes.

Methods of shoe manufacture are known which enable an outsole, made of an elastomer or a plastomer (or a combination of both) to be attached to a shoe upper, and these methods fall into two distinct groups. In the first method group the upper is connected to the outsole simply by connecting a golosh-like component (made of an elastomer, a plastomer or a combination of both) to the sides of the upper.

To this end, in one prior art technique within this first method group, after the quarters and the vamp, for instance, have been cut out flat and assembled by sewing, an insole or sock, for instance of light canvas, is sewn to the bottom edge of the assembled upper which comprises said quarters and vamp. Before the sole moulding operation, the assembly formed by the upper and said insole or sock (often referred to as a slip assembly) is fitted over a mould core or former, so that during sole moulding the slip assembly occupies a determined and almost constant position in relation to the mould shells. The mould shells are adapted to locate in position a lateral strip of moulded material, sometimes termed the golosh, which is made integral or is unitary with the outsole, so that during assembly the golosh is bonded to the sides of the upper, the outsole thus being connected to the upper via the said golosh. This kind of shoe, that is, a shoe having a golosh, is more particularly used in fairly heavy models, such as shoes for winter wear. However, this mode of construction gives light-weight shoes for town wear or summer shoes an inelegant appearance which often does not satisfy the customer's taste. This method of production nevertheless has the advantage of obviating the very troublesome operation of slip or string lasting the upper.

In the second method group, the outsole is connected directly to the edges of the upper which have been inturned or "wiped" beforehand onto a last during the operation of shaping and mounting the upper. The resulting shoe is more elegant and lighter than one made according to the first method group, since it has no golosh. However, the mode of construction is more expensive, since the operation of shaping and mounting the upper on a last to stretch the upper and inturn or wipe its edges thereover is a long and laborious one. The operation is generally carried out on a wooden last.

It is an object of the invention to provide an improved method of shoe-making enabling shoes to be manufactured in a simpler, more economic and more rational manner.

The invention consists in a method of manufacturing shoes comprising the steps of pre-moulding a one-piece upper of synthetic leather material or the components of an upper of synthetic leather material and securing said components together to provide an upper, the one-piece or multi-component synthetic leather upper having at least a partial insole portion, and applying to said insole portion an outsole.

The method according to the invention obviates wastage of materials, enables readily mouldable synthetic leather, to be used and allows a certain amount of standardisation of the moulds and mould elements, some of which can be common to the upper-moulding operations and the outsole moulding operations.

If desired, one-piece moulded uppers may have an integral complete insole portion, that is, an insole extending over the whole of the

[Price 4s. 6d.]

underside of the wearer's foot, but in preferred arrangements the upper—whether a one-piece or multi-piece upper—has an insole portion in the form of an inwardly extending flange strip.

The upper may comprise a top portion which consists at least of parts adapted to extend over a wearer's toe and around the back of the wearer's heel and a bottom portion consisting of said inwardly extending flange strip and of an upwardly extending side wall, said top portion of the upper being nested in the bottom portion thereof, and said top portion of the upper may be in two sections, namely a front vamp section and a rear section comprising the two quarters of the upper adjoined along the heel end thereof; moreover said rear portion of the upper may comprise two separate quarters.

If desired, the upper may be divided along the full depth of the heel end thereof to permit of relative expanding or contracting movement between the opposite sides of the upper, the gap at the heel end of the upper being closed by a panel or strip before the outsole is applied. In all cases the one-piece or multi-piece upper consists of premoulded components.

Thus the invention may be viewed as providing a method of manufacturing shoes having an upper which is entirely premoulded, the method comprising all or most of the following steps :— all or some parts of the upper are moulded on a last or press moulded; those portions of the moulded elements to which the outsole is fixed are formed, if necessary, with apertures adapted to receive moulded synthetic leather material adapted to connect the outsole to the upper; the various parts of the uppers are assembled directly or on a last, by any suitable means, such as sewing, glueing or welding; and the uppers, in one-piece or assembled together, are connected by any suitable means, more particularly by moulding, to prefabricated heels or soles (with or without goloshes, "foxing" or guard walls), with the preliminary inter-position, if necessary, of a sock for insulation or cleanliness, a connection being formed by moulding a combined outsole and heel unit or a sole blank onto the bottom of the sides of the upper or on a strip turned in from the bottom periphery of the uppers, said moulded outsole or sole blank including plastomer or elastomer rivets which are introduced during the moulding operation into the apertures with which the premoulded uppers are formed.

Some non-limitative embodiments of the invention will now be described with reference to the accompanying drawings, wherein:

Figure 1 is a side perspective view of one form of upper according to the invention, that is, one having a thin insole which is integral or unitary therewith,

Figure 2 is an underside perspective view of the upper shown in Figure 1,

Figure 3 is a perspective view of another form of upper according to the invention, that is, one with a partial insole in the form of an inturned flange strip,

Figure 4 is an underside perspective view of the upper shown in Figure 3, showing the upper after it has been opened or divided at the heel end thereof,

Figure 5 is an underside perspective view showing a rear panel or strip attached over the gap of the divided upper shown in Figure 4, with a flat sock abutting the insole flange strip,

Figure 6 is a cross section, taken along the line VI-VI in Figure 5, to show how rivets forming part of the mouldable sole material serve to key the outsole to the insole flange strip of the upper,

Figure 7 is a top perspective view of the bottom section of an upper, provided with a golosh, or "foxing" or upstanding side wall and with a lower insole flange strip,

Figure 8 is an exploded view showing the method of moulding in one piece the vamp of an upper,

Figure 9 is an exploded view showing the method of moulding in one piece the two quarters of an upper,

Figure 10 is a side perspective view of a shoe showing the one-piece moulded vamp and quarters of the upper shown in Figures 8 and 9 respectively assembled on the shoe element shown in Figure 7, and with a moulded outsole and heel applied thereto,

Figure 11 is an exploded view showing the moulding of right and left halves of an upper, and

Figure 12 is a perspective view showing the moulded half-uppers of Figure 11 mounted on a former in readiness for the application of a sole blank.

Figures 1 and 2 show a one-piece upper blank 1 which has been moulded on a last or former and comprises an upper 2 unitary with a very thin insole 3 formed with apertures 4; this is a complete insole which extends over the whole of the underside of the wearer's foot, as conventionally employed. A prefabricated sole and heel unit can be glued or sewn directly onto the thin sole of the upper blank 1, or alternatively, the upper blank 1 can be fitted to the core or former of a mould for the injection or other pressure moulding of a combined outsole and heel unit; the upper blank 1 is made so as to fit accurately on the mould core or former. When the moulding operation is performed the outsole-heel unit makes a keyed connection with the thin insole by reason of the apertures 4 into which the mouldable sole material penetrates.

In a variant form of the method according to the invention, the initial mould is so con-

structed as to produce an upper blank 7 (Fig. 3) comprising in one piece and completely unitary with one another an upper 5 and a partial insole in the form of a lower inwardly directed flange strip 6 corresponding to the usual lasting margin conventionally provided on an upper and formed by inturning or wiping the lower periphery of the upper. The resulting upper blank 7 thus has an open or partial insole formed by the flange strip 6, and this upper blank 7 can be readily fitted on the core or former of a mould for direct moulding thereon of an outsole and heel unit. The upper blank 7 may be divided along the heel end to produce an aperture 8 (Fig. 4) which enables the upper to be shortened as required, so that a single upper blank can be initially moulded and used to produce blanks of various lengths onto which may be moulded suitable outsoles by means of a number of different size sole moulds. The two edges of the aperture 8 of the divided upper blank 7 are adapted to be connected to one another by the use of a panel or strip 9 (Fig. 5). A sock 10 for cleanliness and wear, and taking the place of a conventional insole, is introduced into the upper blank 7 and rests on the insole flange strip 6. The direct moulding of an outsole 11 onto the upper blank produces protuberances on the moulded outsole which form rivets 11*a* (Fig. 6) which extend through the apertures 4 in the insole strip 6 and adhere to the flat sock 10.

In the arrangements described above the complete insole 3 (Fig. 2) or a partial insole in the form of a flange strip 6 (Fig. 3) is formed integral with a one-piece upper blank 1 (Fig. 1) or upper blank 7 (Fig. 3) respectively, but in a variant form of upper according to the invention, the initial mould produces an intermediate member 12 (Fig. 7) which comprises only the partial insole flange strip 6 (formed with apertures 4) and surrounded by a guard or welt wall 13, sometimes called a golosh; this guard or wall 13 is similar to the conventional "foxing" in appearance. The upper now comprises a top section and a bottom section, the latter consisting of intermediate member 12. A combined outsole and heel unit or a sole blank (to which a separate heel may subsequently be secured) is adapted to be connected to the intermediate member 12 by any suitable method, such as glueing, sewing or moulding, with the preliminary interposition inside of a sock 10 (as in Figs. 5-6). The intermediate member 12 can be divided or gapped in the heel region (as in Fig. 4) so that identical members 12 can be used for the making of shoes of different sizes. An upper top section of any suitable form can be attached to the intermediate member 12 by any suitable means.

One example of a two-section upper combined with an intermediate member will now be described. Fig. 8 shows the various elements of a mould 14 adapted for the production of a vamp 15 having a tongue 16 with a partial insole in the form of an inturned flange strip 6*a*; the mould comprises a matrix 17 and a punch 18.

Figure 9 illustrates the moulding of the two quarters of the top section of a shoe upper, in one piece, by means of a mould 19 comprising a matrix 20, a male member 21, and a core or former 22 producing a quarters component 23, also having an inturned flange 6*b*. The use of the moulds 14 and 19 enables the two components of the top section of the upper to be produced to a required constant thickness; the moulded material is a synthetic leather, which can be used for the production of shoe uppers, and can readily be moulded and take on the colours normally used in shoe manufacture.

To produce a shoe such as that shown in Figure 10, the vamp 15 is attached to the quarters component 23 by sewing, for instance, whereafter the resulting upper is attached to an outsole and heel, the upper being first of all attached by any suitable means, such as glueing or welding, to an intermediate member 12, such as shown in Figure 7, the connection being performed via the strips 6*a*, 6*b*.

Another example of a two-section upper combined with an outsole-heel unit is illustrated in Figures 11 and 12. This example concerns "walking" shoes, or shoes having high uppers, and in this case the two sections are obtained by moulding an upper in two halves. A mould 24 (Fig. 11) comprises two female mould members 25 and 25*a* and a male mould member 26 including a plate 27 which is adapted to be interposed between the two female members 25 and 25*a*; the male mould member 26 comprises two relief portions mounted on opposite sides of plate 27 and each adapted to produce a half-upper 28, the female mould members 25 and 25*a* corresponding respectively to the two half-upper relief portions. The moulding process produces, as before, partial insole flange strips 6 which are unitary with the half-uppers 28 and which enables the half-uppers to be attached to a sole and heel blank by any of the methods described hereinbefore with relation to the other forms of the invention. The two half-uppers 28 may be assembled together by sewing at the front and rear before attaching the outsole and heel. By using a last 29 (Figure 12) a sole blank 30 having an integral heel can be attached to the assembled upper 31 by sewing, glueing or other suitable method with the co-operation of the flange strips 6. The sole and heel 30 can be moulded onto the upper 31 by means of two half-shells 32.

Clearly, the various forms of the method

according to the invention enable shoes having a golosh-like intermediary part to be manufactured by the press premoulding of the upper elements, thus avoiding cutting operations and resultant waste of raw material. The method according to the invention also enables all kinds of shoes to be produced without such a golosh (and with or without a welt) there being no necessity for the previous mounting of the upper on a last to turn-in or wipe over the lower edges of an upper onto the underside of a last. The invention also enables the upper to be fitted to a mould core or former for the moulding of the sole and heel, without the necessity of first sewing or glueing an insole to form the underside of the upper.

WHAT I CLAIM IS :—

1. A method of manufacturing shoes comprising the steps of premoulding a one-piece upper of synthetic leather material or the components of an upper of synthetic leather material and securing said components together to provide an upper, the one-piece or multi-component synthetic leather upper having at least a partial insole portion, and applying to said insole portion an outsole.

2. A method as claimed in claim 1, wherein the outsole includes a heel.

3. A method as claimed in claims 1 or 2, wherein the components of the upper are attached together by sewing.

4. A method as claimed in claims 1 or 2, wherein the components of the upper are attached together by glueing.

5. A method as claimed in claims 1 or 2, wherein the components of the upper are attached together by welding.

6. A method as claimed in any one of claims 1 or 2, wherein the upper is moulded on a last.

7. A method as claimed in any one of claims 1 to 6, wherein the upper is attached to the outsole by sewing.

8. A method as claimed in any one of claims 1 to 6, wherein the upper is attached to the outsole by glueing.

9. A method as claimed in any of claims 1 to 6, wherein the upper is attached to the outsole by welding.

10. A method as claimed in any one of claims 1 to 6, wherein the upper is attached to the outsole by direct moulding.

11. A method as claimed in any one of claims 1 to 9, wherein a sock is introduced into the upper.

12. Methods of manufacturing shoes substantially as hereinbefore described with reference to the accompanying drawings.

13. Shoes when made according to methods as claimed in any of the preceding claims.

STEVENS, LANGNER,
PARRY & ROLLINSON,
Agent for the Applicant.

Printed for Her Majesty's Stationery Office, by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1969.
Published at the Patent Office, 25 Southampton Buildings, London, W.C.2. from which copies may be obtained.

FIG. 1

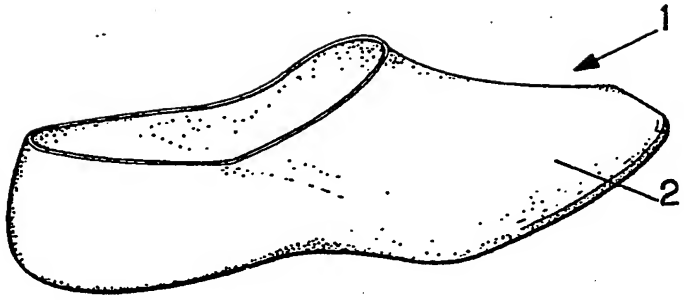


FIG. 2

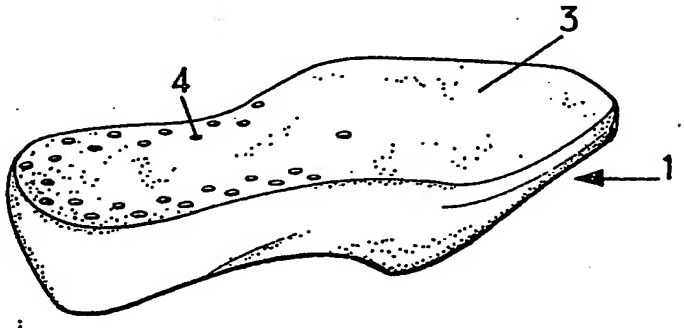
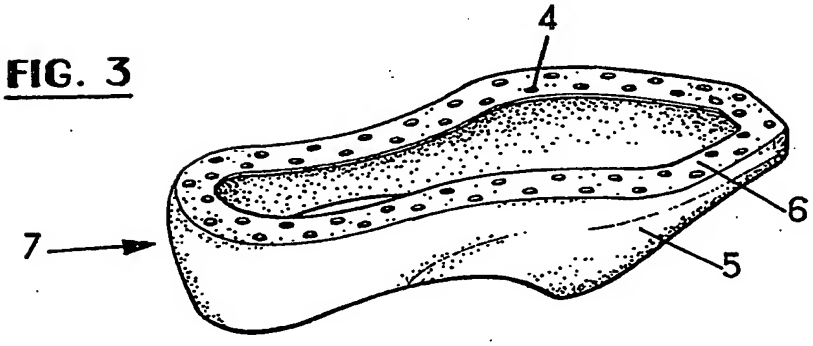


FIG. 3

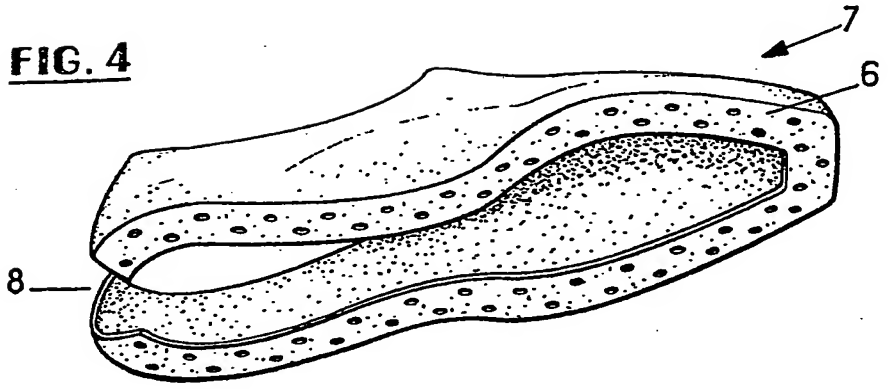


1,141,836 COMPLETE SPECIFICATION
6 SHEETS
This drawing is a reproduction of the Original on a reduced scale.
SHEETS 1 & 2

1

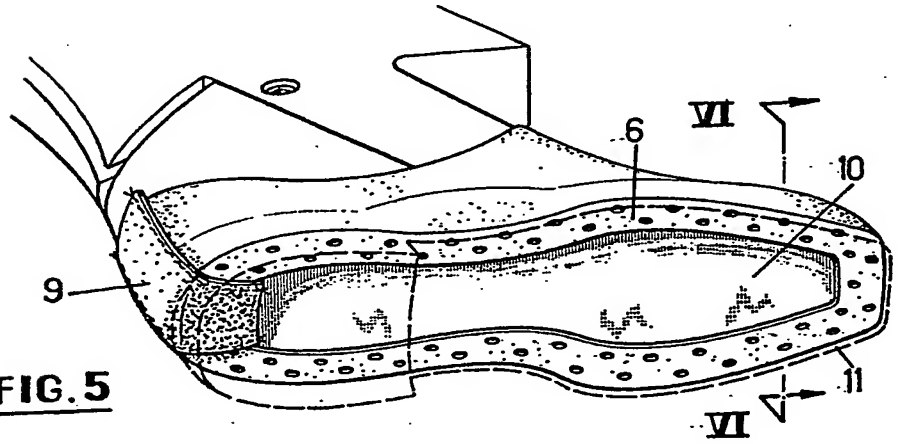
2

FIG. 4



1

FIG. 5



6

FIG. 6

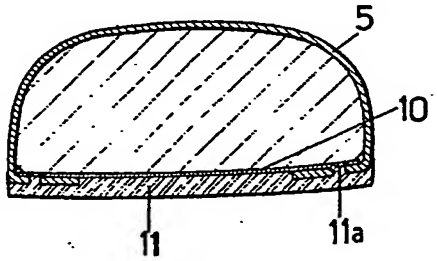


FIG. 1

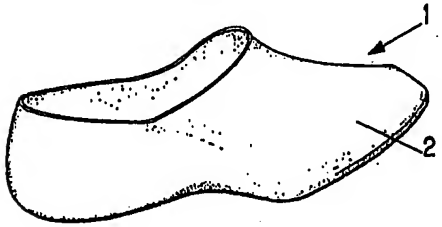


FIG. 2

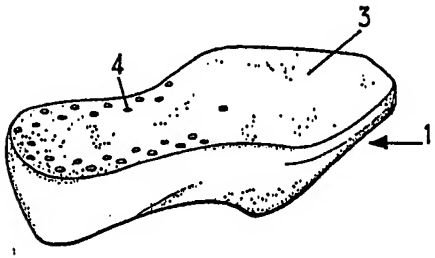


FIG. 3

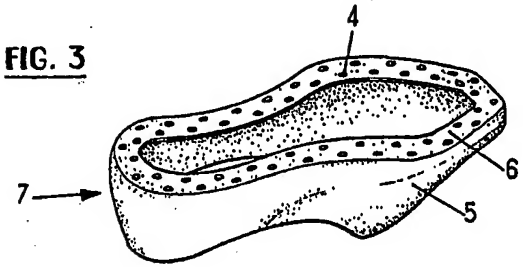
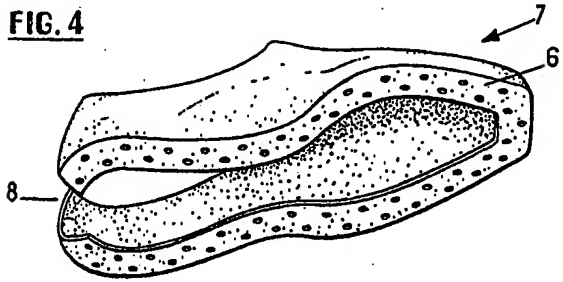


FIG. 4



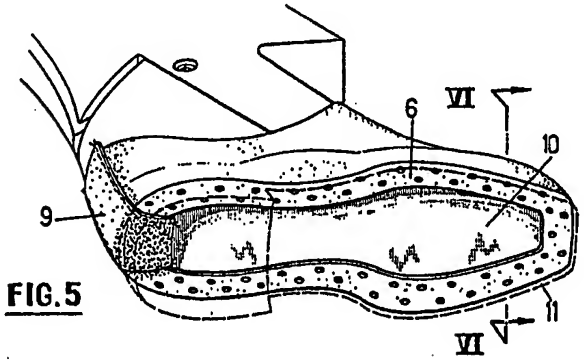


FIG. 5

FIG. 6

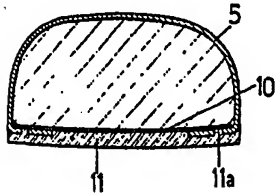


FIG. 7

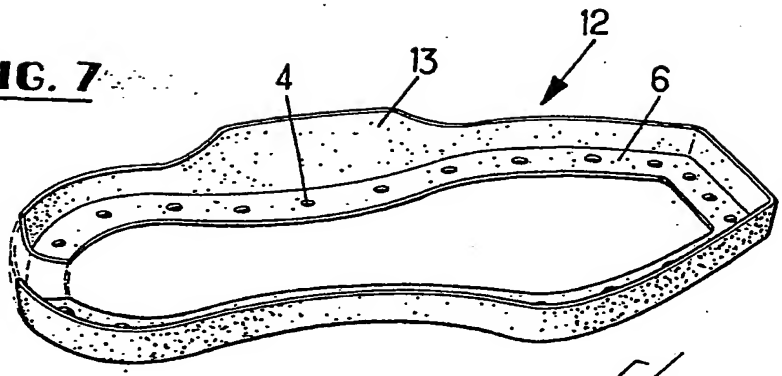


FIG. 8

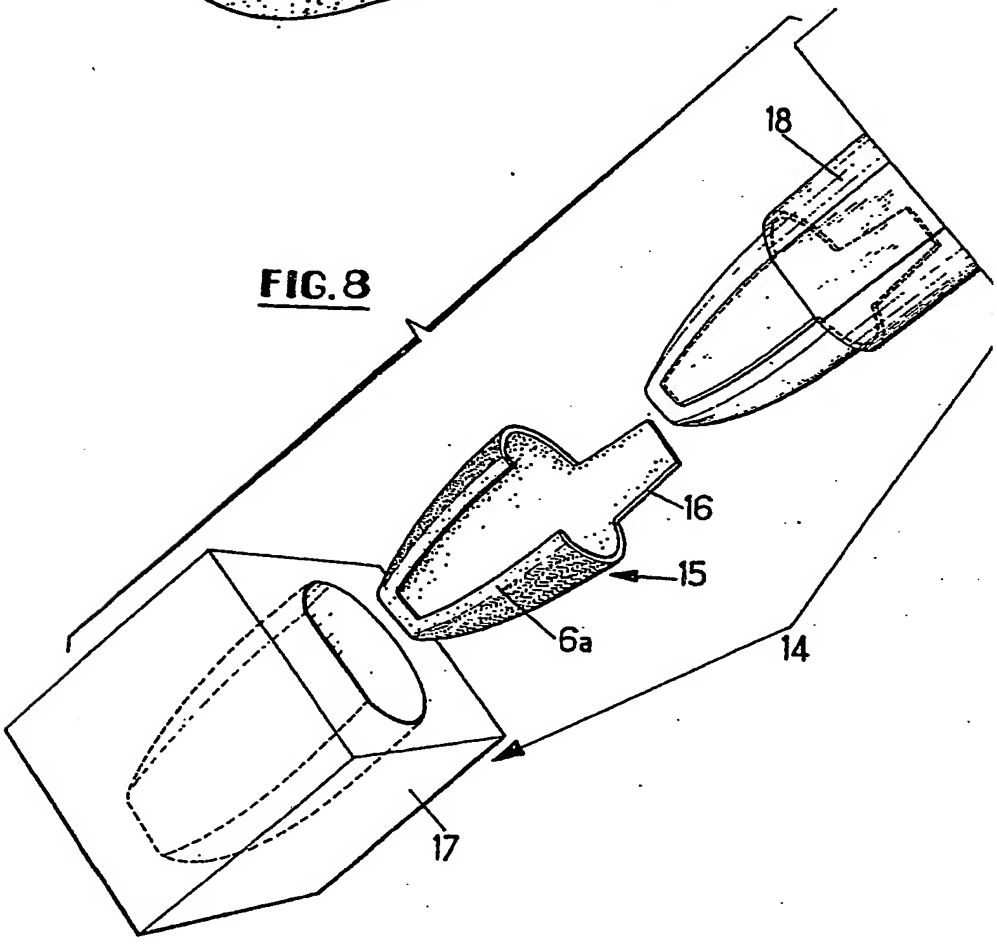


FIG. 7

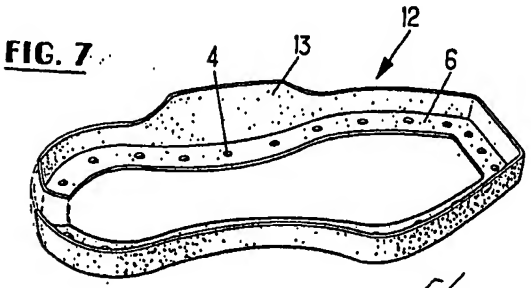


FIG. 8

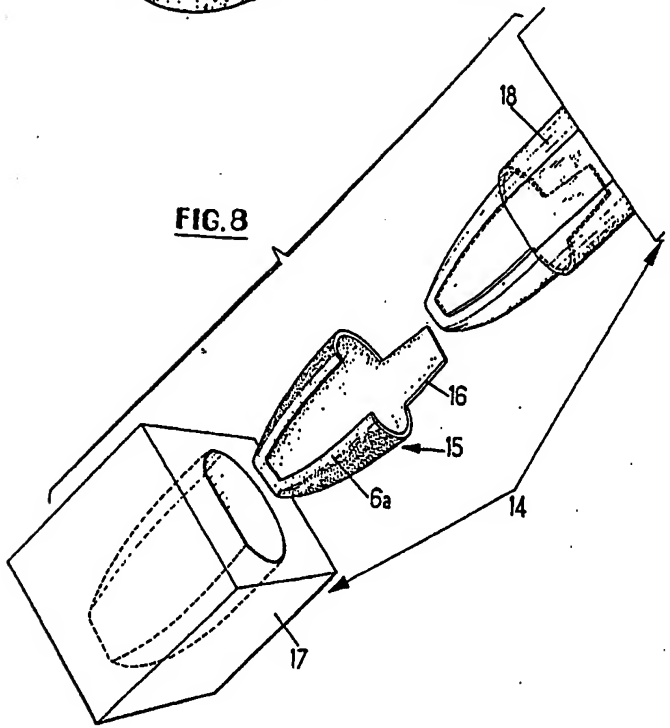


FIG. 9

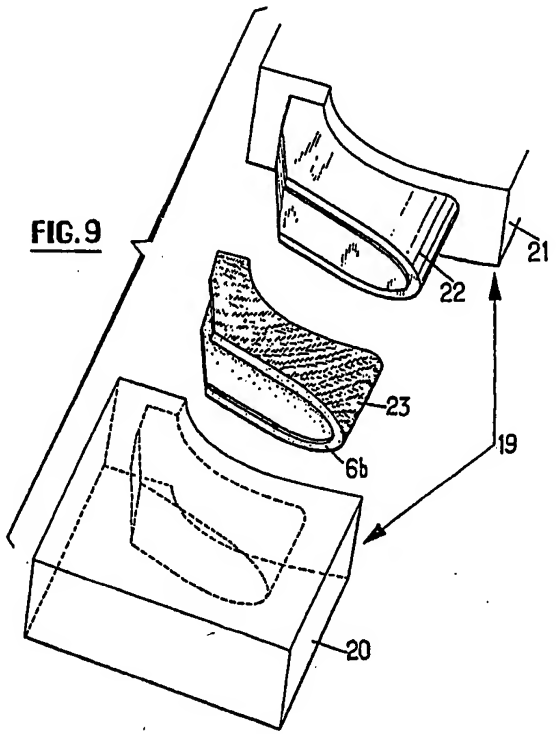
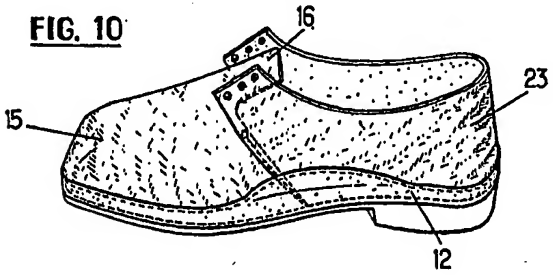


FIG. 10



1,141,836 COMPLETE SPECIFICATION
6 SHEETS
This drawing is a reproduction of the Original on a reduced scale.
SHEETS 3 & 4

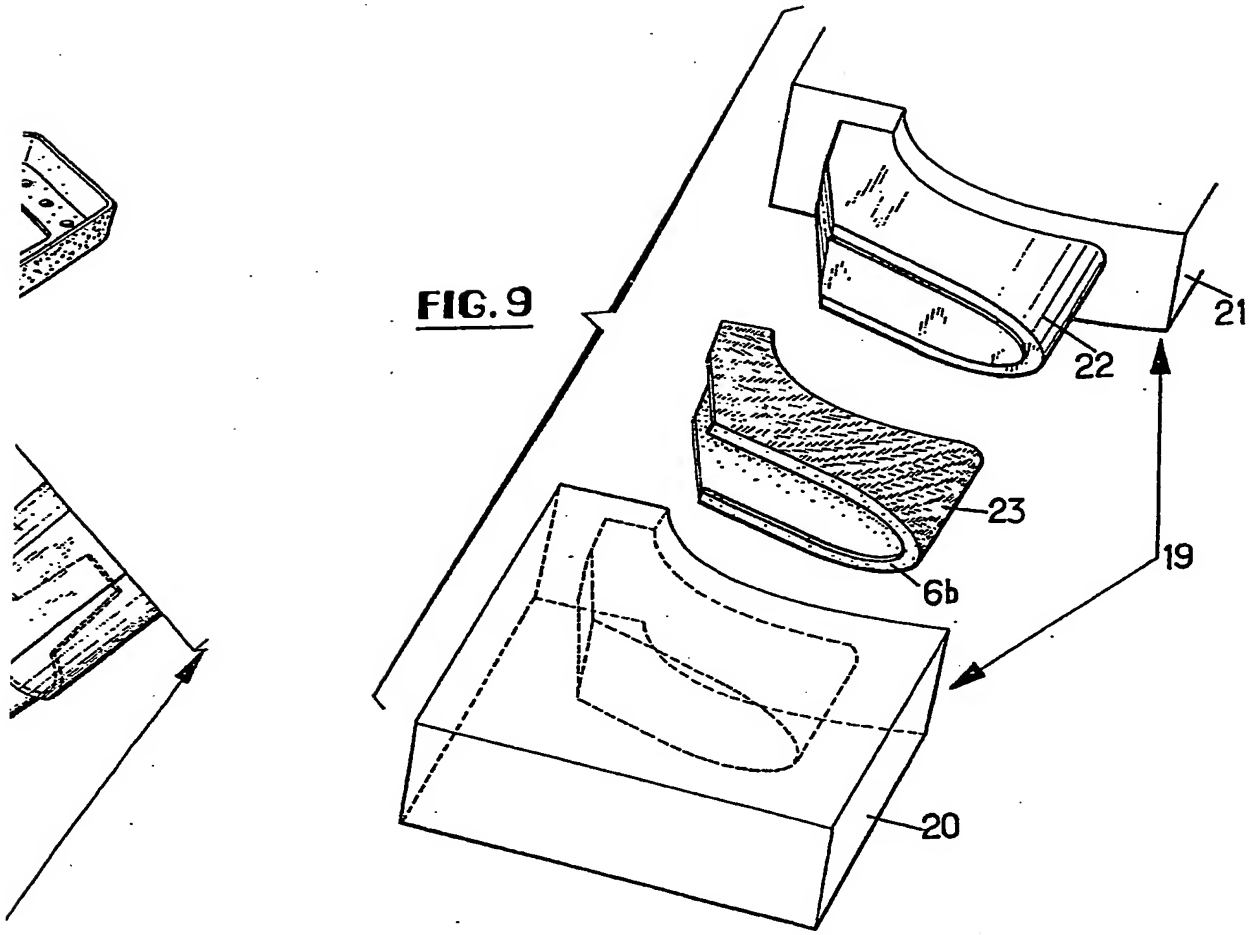


FIG. 9

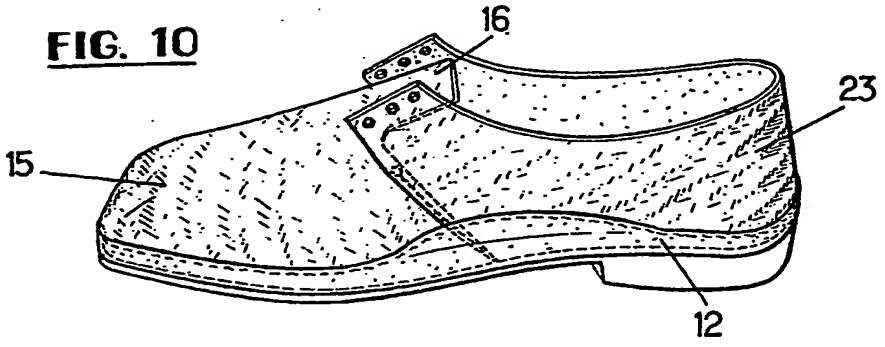


FIG. 10

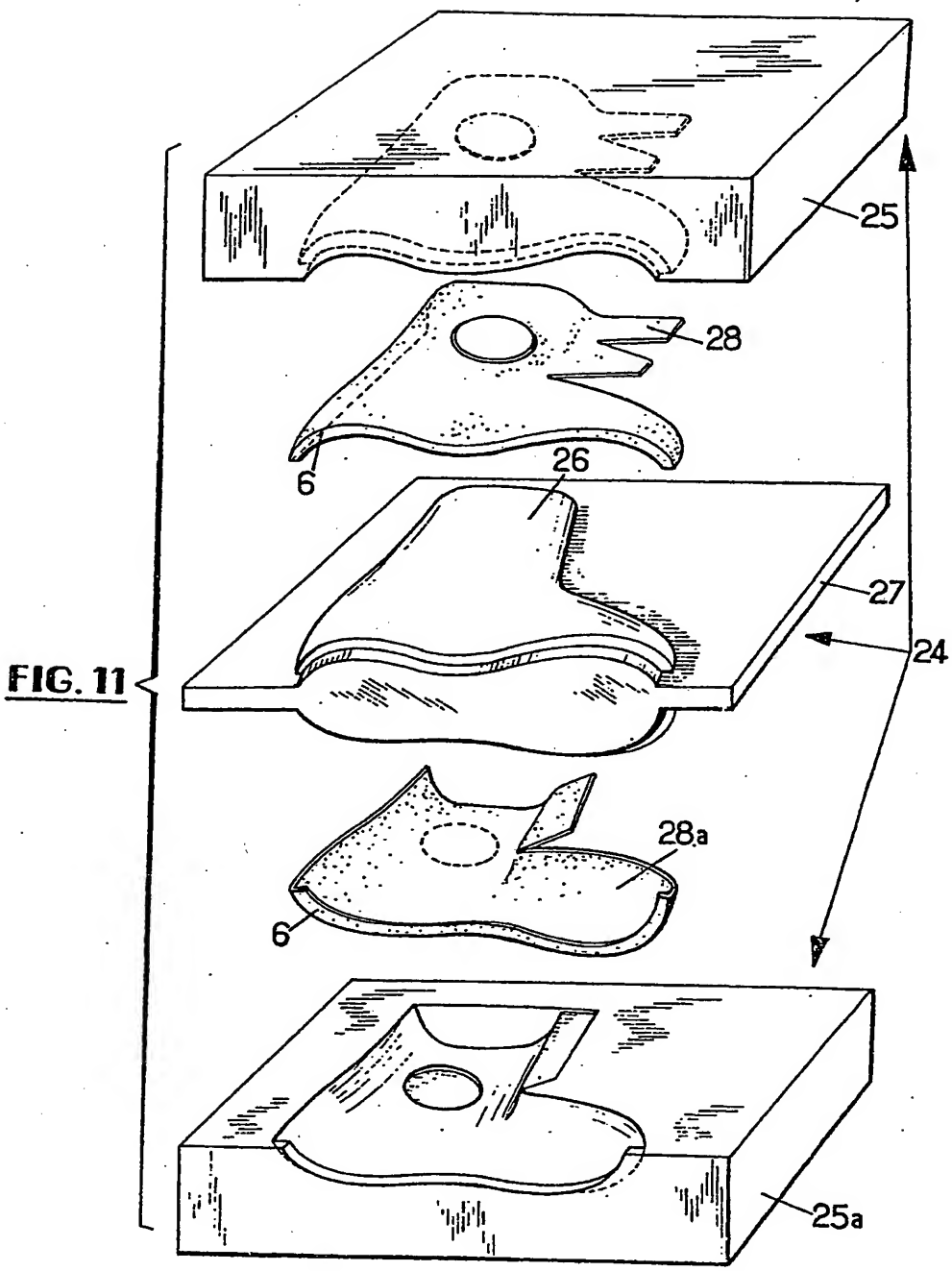


FIG. 11

1,141,836 COMPLETE SPECIFICATION
6 SHEETS

This drawing is a reproduction of the Original on a reduced scale.
SHEETS 5 & 6

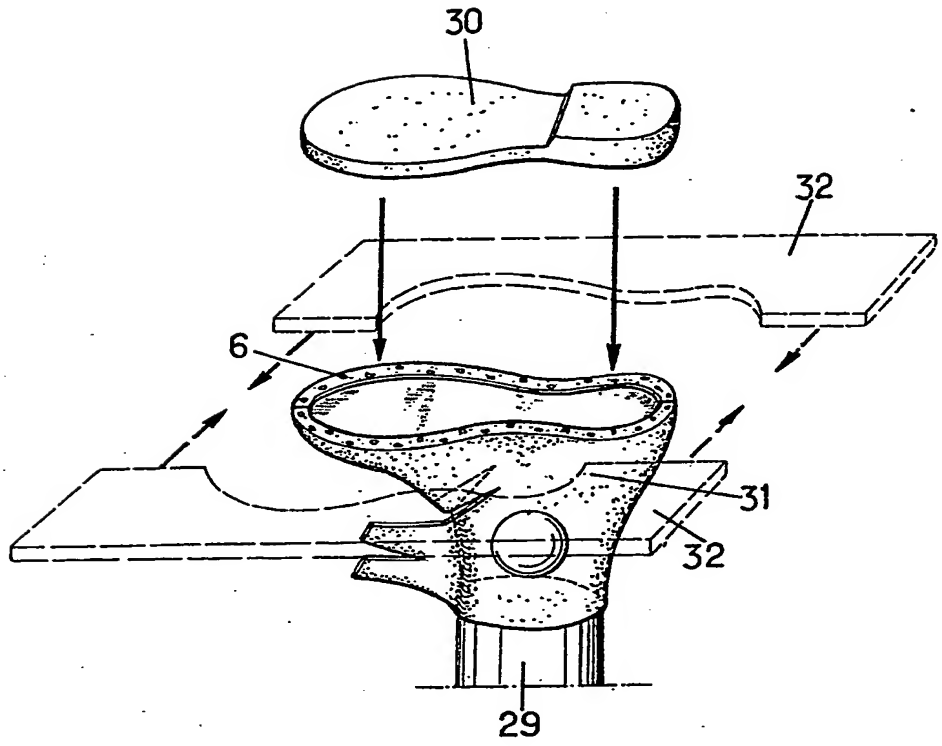


FIG. 12

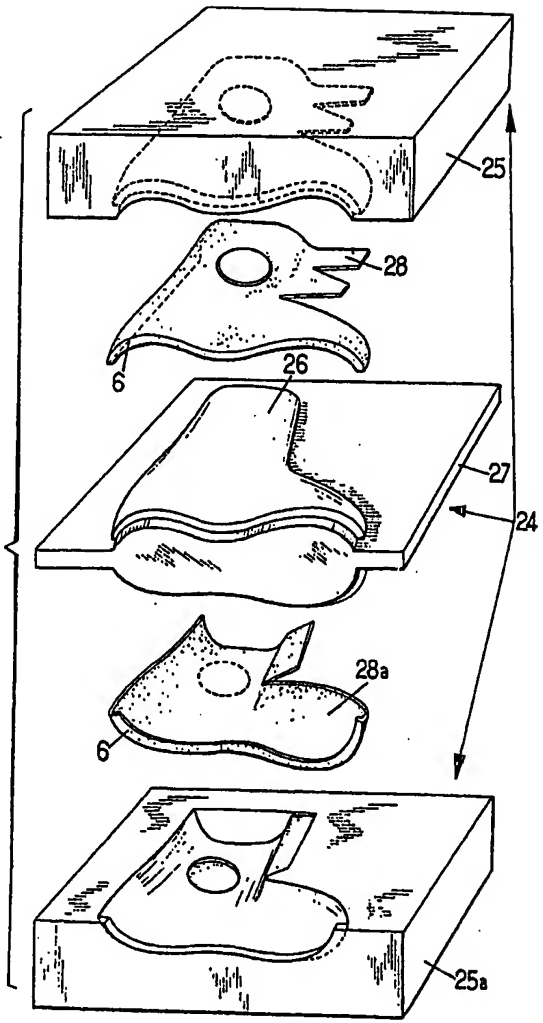


FIG. 11

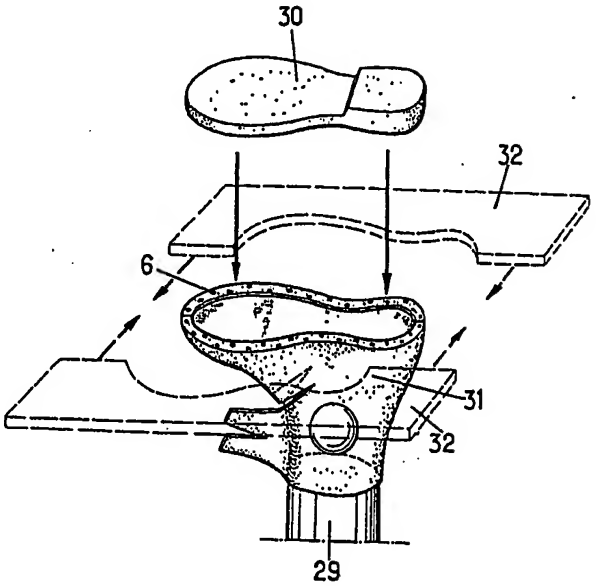


FIG. 12